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10/500,635	03/30/2005	Jerzy Kuczynski	2156-340A	3011

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EXAMINER

ZIMMERMAN, JOSHUA D

ART UNIT	PAPER NUMBER
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2854

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/500,635	Applicant(s) KUCZYNSKI ET AL.	
	Examiner JOSHUA D. ZIMMERMAN	Art Unit 2854	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 19-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 19-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/09/09 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 5, 13, 15-17, 19, 22-25, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' Admitted Prior Art (AAPA) in view of Teng (US 6541183).

Regarding claims 1 and 2, AAPA teaches "a method for the producing a flexographic printing plate, which has a base layer and a layer of a light sensitive material attached to the base layer (page 1 lines 4-11), comprising producing an image in the layer of the light sensitive material by selective crosslinking (page 1, lines 4-10), by insulating zones which are to be crosslinked with amplitude modulated laser light

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having a wavelength (page 1 lines 17-19), and sweeping the layer of the light sensitive material with the amplitude modulated laser light to produce crosslinked zones in the layer of light sensitive material without the use of a mask (page 1, lines 17-19), and, thereafter, removing zones which are not crosslinked to create the image in the solid layer of the light sensitive material (page 1, lines 7-10)."

AAPA fails to teach that the laser light has "a wavelength of 390 to 410 nm," that the solid layer includes "at least one photoinitiator sensitive to said laser light at said wavelength," or that "the photoinitiator undergoes a photoreaction under effect of said laser light to bleach the layer of light sensitive material, wherein the bleaching renders the crosslinked zones transparent to said laser light in order to enable cross-linking throughout the thickness of the layer of light sensitive material."

Teng teaches that violet laser diodes having a wavelength of "about 405nm" are preferred because they have lower cost (column 10, lines 43-51). AAPA also fails to teach the use of "a bundle of diodes," as claimed in claim 2. Teng further teaches using a bundle of diodes in order to have a higher throughput (column 2, lines 35-40). Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to use a bundle of violet laser diodes in the method of AAPA in order to have a lower cost method with higher throughput, as taught by Teng.

Teng further teaches using a corresponding initiating system for the selected wavelength of light (column 5, lines 52-67).

AAPA discloses a number of photoinitiators sensitive to the wavelength of light used that were commercially available at the time of the invention (first paragraph of

page 3), and further teach that all of the listed photoinitiators inherently “undergo a photoreaction under effect of said laser light to bleach the layer of light sensitive material, wherein the bleaching renders the crosslinked zones transparent to said laser light in order to enable cross-linking throughout the thickness of the layer of light sensitive material (applicants’ admission in the third paragraph of page 8 of applicants’ reply dated 04/16/08, and in the amendment to the specification of the same date).”

Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to use any of the commercially available photoinitiators disclosed by AAPA in the modified method of AAPA in order to have a light sensitive layer that is sensitive to the wavelength of light being used to expose said layer, as taught by Teng.

Finally, AAPA also fails to specifically mention the thickness of the solid layer of light sensitive material. However, Examiner takes Official Notice that it was common practice in the art, at the time of the invention, to make the thickness of light sensitive layer of a flexographic printing plate “between 0.5 and 2 mm” in order to achieve a printing plate which produces an acceptable image. Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to make the thickness of the light sensitive layer in the modified plate of AAPA “between 0.5 and 2 mm” in order to produce an acceptable image.

Regarding claims 5 and 28, Teng further teaches “wherein the light sensitive material contains at least one selected from the group consisting of high molecular weight polymers, functionalized monomers or oligomers and photo-initiators (column 5, lines 52-67).”

Regarding claim 13, Teng further teaches “insolating the light sensitive material with an energy in a range from 20 to 1000 mJ/cm². (column 10, lines 50-54).”

Regarding claim 15, the array of diodes taught by Teng operate “in parallel.”

Regarding claim 16, the plate produced by the modified method of AAPA from claim 1 above results in the structure claimed. See also page 2, lines 16-17 of Applicants’ specification which admits that a printing plate in the form of a tubular sleeve on a rigid support is known in the art.

Regarding claim 17, AAPA as modified teach all that is claimed, but fail to specifically mention the thickness of the composite base. However, Examiner takes Official Notice that, at the time of the invention, it was known to make the thickness of the composite base have “a range from 0.2 to 40 mm” in order to achieve a printing plate with proper support. Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to make the composite base of the printing plate of AAPA have a thickness in “a range of 0.2 to 40 mm” in order to achieve a printing plate with proper support.

Regarding claim 19, the sleeve is inherently compressible, since it is made of polymers, specifically elastomers (see page 1, lines 11-13 of applicants’ specification).

Regarding claims 22-24, the recited limitations are product-by-process limitations which do not recite structure which defines over the modified structure of AAPA.

Regarding claim 25, AAPA as modified fails to disclose “wherein the rigid support includes a base made of polyester film.” However, examiner takes Official Notice that it was known to use a polyester film as a support base in order to achieve a useful

printing plate. Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to use a polyester film as a support base in the modified plate of AAPA in order to achieve a useful printing plate.

Regarding claim 29, the plate produced by the modified method of AAPA from claim 28 above results in the structure claimed. See also page 2, lines 16-17 of Applicants' specification which admits that a printing plate in the form of a tubular sleeve on a rigid support is known in the art.

3. Claims 3, 4 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA and Teng, as applied to claim 1 above, further in view of Cohen et al. (US 3264103).

Regarding claim 3, AAPA as modified fails to teach that the non-crosslinked zones are removed "by liquefying the zones which are not crosslinked thermally, without using solvents." However, Cohen et al. teach such a method (column 1, lines 67-72) in order to avoid using toxic chemicals (column 1, lines 30-33). Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to use the dry process of Cohen et al. in the modified method of AAPA in order to avoid using toxic chemicals.

Regarding claim 4, Cohen et al. further teach "wherein the light sensitive material not crosslinked by the laser light has a variation in viscosity in a temperature range from 60 to 140°C., and the zones that are crosslinked melt at a temperature higher than the temperature range (column 1, line 55-72).

Regarding claim 27, when further modifying AAPA in accordance with Cohen et al., as in claim 3 above, inherently, the “flexographic printing plate is etchable with one of water, an aqueous solution under pressure, high temperature, and brushing.”

4. Claims 6-12 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA and Teng, as applied to claim 1 above, further in view of Kuczynski et al. (FR 2803245). For simplicity, the corresponding US document of FR 2803245, US 2003/0054153, will be used for citations.

Regarding claim 6, AAPA as modified teaches all that is claimed, as in claim 1 above, but fails to teach “the light sensitive material is a photo-polymer containing at least two complementary crosslinking systems.”

Kuczynski et al. teach the need to adjust the compressibility of a printing plate in order to increase productivity and to improve printing quality (paragraph 4). Kuczynski et al. further teach a crosslinking system for flexographic printing plates comprising two complementary systems which allows for adjusting the compressibility of the photopolymer layer (paragraphs 62-64).

Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to include a complementary crosslinking system in the photopolymer layer in the modified method of AAPA in order to adjust the compressibility of the printing plate and/or to increase productivity and/or to improve the printing quality.

Regarding claim 7, Kuczynski et al. further teach “wherein a main crosslinking system is used to create the image in the solid layer of the light sensitive material (paragraph 64).” In this paragraph, examiner interprets the ‘main system’ as the imaging system, and the ‘complementary system’ as the system which modifies the compressibility after the printing plate has been imaged and created.

Regarding claim 8, Kuczynski et al. further teach “wherein a complementary crosslinking system is used to complete the crosslinking and to increase chemical and mechanical resistance (paragraphs 62-63 and paragraph 144).”

Regarding claim 9, Kuczynski et al. further teach “including using a complementary system to generate different compressibilities (paragraph 64).”

Regarding claim 10, Kuczynski et al. further teach “including partially crosslinking the photo-polymer to adjust viscosity and prevent cold creep during prolonged storage periods or transport (paragraph 62).” Examiner notes here that creating or destroying other bonds inherently adjusts the viscosity.

Regarding claim 11, Kuczynski et al. further teach “including sensitizing the photo-polymer with a flash of light before writing an image with the laser light (paragraphs 170-172).”

Regarding claim 12, even though AAPA as modified does not specifically disclose that “the light sensitive material is a polymer with hardness between 60 and 70ShA,” the structure and process by which it is made are identical to that of the instant claims. As a result, since the polymer in the modified method of AAPA is identical to the

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claimed polymer, the claimed hardness property is met by the polymer of AAPA. See MPEP 2112.01.

Regarding claim 26, Kuczynski et al. further teach including a plurality of layers of light sensitive material (paragraphs 169-170).

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA and Teng, as applied to claim 1 above, further in view of Robinson et al. (US 5795647). Regarding claim 14, AAPA as modified fails to teach that the sleeve could be produced by “thermally projecting pre-formulated powders onto a support sleeve to produce the sleeve.” However, one having ordinary skill in the art would recognize that powder coating and extrusion coating methods are both recognized as equivalent methods of applying polymers. Further, column 2, lines 15-18 of Robinson et al., teach the same. Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to use either method in order to easily and properly apply the polymers for the flexographic printing plate.

6. Claims 20, 21 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA and Teng as applied to claim 16 above, further in view of Francille et al. (US 5706731).

Regarding claim 20, AAPA as modified discloses all that is claimed except “including a second sleeve containing an inserted layer for variation of thickness of the sleeve.”

Francille et al. teach including a second sleeve in order to facilitate changing sleeves (column 2, lines 25-63).

Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to include a second sleeve in order to facilitate changing sleeves.

Regarding claim 21, Francille et al. further disclose “wherein the inserted layer is compressible (since the layer is a polymer, it is inherently compressible to some degree).”

Regarding claim 26, each of the layers of the modified structure of AAPA is light sensitive, thereby meeting the claim limitation that there be a plurality of layers of light sensitive material.

Response to Arguments

7. Applicants' arguments with respect to all the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSHUA D. ZIMMERMAN whose telephone number is (571)272-2749. The examiner can normally be reached on M-R 8:30A - 6:00P, Alternate Fridays 8:30A-5:00P.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Joshua D Zimmerman
Examiner
Art Unit 2854

/jdz/

/Judy Nguyen/
Supervisory Patent Examiner, Art Unit 2854